

Cartesian Diver Worksheet

Name: _____ Date: _____

Section: _____ Group: _____

Objectives:

- To demonstrate understanding of buoyancy and Archimedes' principle.
- To use a Cartesian diver based on understanding of density, buoyancy and pressure.

Definitions: Please clearly define each word.

volume

mass

density

buoyancy

pressure

Question/Problem:

What is the relationship between volume, mass and density?

Materials

- bottle with cap filled with water
- drinking straw
- rubber bands
- paper clips

Procedure

1. Fill the bottle with water.
2. Cut the straw in half and then bend it in half.
3. Wrap the rubber band around the straw to keep in place. It should form an upside down V.
4. Place the paper clips on each side of the diver, hanging from the rubber bands.
5. Place the diver in the bottle carefully, legs down.
6. Screw the cap on the bottle so it is closed securely.
7. Squeeze the bottle and observe what happens to the Cartesian diver.
8. If nothing happens, remove diver from bottle and add more paper clips.

Cartesian Diver Activity—Worksheet 1

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Questions

1. What happens when the bottle is squeezed?
2. What happens when the bottle is released?
3. What variables affect an object's ability to float?
4. Use the variables you listed in question 3 to explain what is happening inside the bottle.
5. How do Pascal's law and Archimedes' principle apply to the Cartesian diver?